

an inner spherical shell member positioned inside said outer shell member; and

said inner shell member and said outer shell member being positioned to provide an insulating radial gap between them;

C1 a first port member in said outer shell member for evacuation of said radial gap to a vacuum, and to provide access for filling said inner shell member with hydrogen material; and

a first heating mechanism on said outer shell member for controlling the rate of evaporation of material contained in said inner shell member;

said inner shell member having an outer surface and an inner surface, said outer surface being coated with a low emissivity material;

said outer shell member having an outer surface and an inner surface, said inner surface being coated with a low emissivity material.

Please cancel claim 13.

Please replace claim 14 with the following:

C2 ~~14.~~ (Amended) The lightweight fuel tank as set forth in claim ~~12~~ comprising a second heating mechanism on said outer surface of said outer shell member for controlling icing of said fuel tank during use.

Please replace claims 18-30 with the following:

~~18.~~ (Amended) A stratospheric vehicle having a fuel tank, said fuel tank comprising:

an outer spherical shell member;

C3 an inner spherical shell member positioned inside said outer shell member;

said inner shell member and said outer shell member being positioned to provide an insulating radial gap between them;

C

said inner shell member having an outer surface and an inner surface, said outer surface being coated with a low emissivity material; and

said outer shell member having a sandwich construction with an inner skin member made of a lightweight metal material, an outer skin member made of a lightweight composite material, and a core member made of a low thermal conduction insulating material.

⁷
~~19~~. (Amended) The stratospheric vehicle as set forth in claim ~~18~~⁶ further comprising a first heating mechanism on said outer shell member for controlling the rate of evaporation of material contained in said inner shell member.

C3 ⁸
~~20~~. (Amended) The stratospheric vehicle as set forth in claim ~~19~~⁷ comprising a second heating mechanism on said outer surface of said outer shell member for controlling icing of said fuel tank during use.

⁹
~~21~~. (Amended) The stratospheric vehicle as set forth in claim ~~18~~⁶ wherein said inner skin member is an aluminum material, said outer skin member is a Kevlar material, and said core member is a low density foam material.

¹⁰
~~22~~. (Amended) The stratospheric vehicle as set forth in claim ~~18~~⁶ wherein said inner shell member is made of an aluminum material and said outer shell member is made of a sandwich of titanium, Kevlar and Nomex materials.

¹¹
~~23~~. (Amended) The stratospheric vehicle as set forth in claim ~~18~~⁶ wherein said low emissivity material is a flash of a copper material.

¹²
~~24~~. (Amended) The stratospheric vehicle as set forth in claim ~~18~~⁶ wherein said inner skin member is coated with a low emissivity material.

¹³
~~25~~. (Amended) The stratospheric vehicle as set forth in claim ~~24~~¹² wherein said low emissivity material is copper.

¹⁴
~~26~~. (New) The stratospheric vehicle as set forth in claim ~~18~~⁶ further comprising a first port member in said outer shell member for evacuation of said

radial gap to a vacuum, and to provide access for filling said inner shell member with hydrogen material.

¹⁵
27. (Amended) The stratospheric vehicle as set forth in claim ¹⁴26 further comprising a second port member in said inner shell member for filling said inner shell member with a hydrogen material, said second port member having a valve mechanism.

¹⁶
28. (Amended) The stratospheric vehicle as set forth in claim ⁶18 wherein said inner and outer shell members are connected at three locations, namely two opposing equatorial external support positions and a port member.

¹⁷
29. (Amended) The stratospheric vehicle as set forth in claim ⁶18 wherein said inner and outer shell members of different materials are connected by a friction welded insert member.

¹⁸
30. (Amended) A lightweight fuel tank comprising:
an outer spherical shell member;
an inner spherical shell member positioned inside said outer shell member;

said inner shell member and said outer shell member being positioned to provide an insulating radial gap between them;

a first heating mechanism on said outer shell member for controlling the rate of evaporation of material contained in said inner shell member; and

a second heating mechanism on said outer shell member for controlling icing of said fuel tank during use.

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Please cancel claim 31.

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